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THE COMMONWEALTH OF MASSACHUSETTS
OFFICE OF THE INSPECTOR GENERAL

INSPECTOR GENERAL'S COMMENTS
ON THE GOVERNOR'S "REPORT ON THE
METROPOLITAN DISTRICT COMMISSION'S
IMPROVED ENGINEERING AND CONSTRUCTION PERFORMANCE"

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Introduction

Three years ago, in 1983, I issued an in-depth report on the Metropolitan District Commission's (MDC's) Parks Division and central management systems. That report documented cases of waste and abuse in Parks Division operations, identified major deficiencies in the MDC's engineering and managerial functions, and recommended that these shortcomings be addressed through a coherent, comprehensive improvement program. I recommended that the skills of Parks Division engineers and managers be upgraded, that effective project management systems be developed, that the MDC's fragmented pool of maintenance employees be centralized, that maintenance be given higher priority, that the MDC's personnel management function be strengthened, and that an internal audit unit be created to detect and prevent wrongdoing and to ensure compliance with the Commission's policies and procedures. I urged that this entire improvement effort be undertaken in accordance with an explicit timetable, so that progress would be measurable. My report concluded that if the MDC did not address the agency's management problems, waste and abuse on MDC projects would continue.

Shortly thereafter, the General Court enacted Chapter 637 of the Acts of 1983 (the Transportation Bond Issue Act) and Chapter 723 of the Acts of 1983 (the Capital Outlay Appropriations Act). Both acts prohibited the MDC from expending funds for Parks Division capital projects authorized therein until 60 days after the Governor submitted to the Legislature a report which "describes the improvements made in the commission's management capabilities, in accordance with a comprehensive improvement plan, and which demonstrates that the Commission has the necessary technical, managerial, and financial capability to execute one or more projects to be funded under this act and to maintain such projects in good repair." The Acts further provided that, within 30 days after receiving the Governor's report, "the inspector general shall provide his written comments thereon" to the clerk of the Senate, the clerk of the House of Representatives, and several specified legislative committees.

In May of 1984, pursuant to these two Acts, the Governor submitted a report to the Legislature on improvements at the MDC. In my comments on that report, I noted that the MDC lacked qualified staff in key managerial and technical positions; a functioning maintenance plan and program; definite plans for performance appraisal, staff training, and position analysis; and a functioning internal audit unit. Consequently, I advised the Legislature that, in my opinion, the contents of the Governor's report did not demonstrate that the MDC had made discernible progress toward improvements in the agency's management capabilities.

In October of 1985, one week after two former MDC engineers and three former officers of MDC contractors were indicted on 37 counts of conspiracy, bribery, conflict of interest, filing false reports, and larceny from the MDC, I issued another report which focused on the MDC's procedures for managing and overseeing the agency's construction and maintenance contracts. My report found that existing procedures lacked essential safeguards against fraud and waste: contract records were not centralized, the process of approving payments to contractors was inadequate to detect fraud, and the MDC continued to lack an effective internal audit unit.

In enacting Chapter 811 of the Acts of 1985 (the Accelerated Transportation Development and Improvement Act), the Legislature chose to require the same process as that mandated by the two Acts cited above: Chapter 811 provides that the MDC may not expend \$33 million in capital outlay funds until 60 days after the Governor has submitted to the Legislature a report which describes improvements in the MDC's management capabilities, and that within 30 days after receiving the Governor's report, the Inspector General will provide written comments to the Legislature. I received the Governor's most recent report on April 7, 1986.

In recent weeks, my Office has examined and attempted to verify the improvements cited in the Governor's report. My Office has also reviewed the status of several of the MDC's major management systems, whether or not they were cited by the Governor's report, since these central systems are critical to the MDC's ability to fulfill its mandate efficiently and effectively. MDC officials and staff have provided my Office with oral briefings as well as

numerous internal documents. They have also arranged field visits to enable my staff to observe the MDC's maintenance operations at three MDC facilities. The data-gathering effort required to conduct this review has been greatly facilitated by the MDC's assistance and cooperation throughout the review process.

On balance, I believe that the MDC has made significant progress. The evidence I have seen in recent weeks clearly demonstrates that the MDC is building the capacity to construct and manage its capital facilities efficiently and effectively. I continue to believe, however, that the MDC will not be adequately protected against fraud, waste, and abuse until an effective internal audit unit has been created and until the management improvements currently being developed are fully implemented. My detailed comments on the Governor's report are provided below.

Progress

The MDC has made substantial progress toward improving major management systems in a number of critical areas, including staffing and organization, project management, maintenance, and human resources. The following section details this evident progress.

Staffing and Organization

The MDC's actions in the area of staffing and organization have clearly improved the Commission's internal capacity to manage its work. Within the Parks Engineering and Construction Division, the MDC has appointed strong, highly qualified individuals to the key positions of Director and Assistant Director of Capital Planning and Control. The establishment last December of the Capital Planning and Control section represents a serious commitment on the part of the MDC toward improved control over the Division's design, construction, and maintenance projects. This section has now been assigned important implementation and monitoring responsibilities in the areas of departmental policies and procedures; capital budgeting; project scheduling, tracking, oversight, and control; and computerization of departmental operations.

At the field level, the MDC created the position of district coordinator and appointed five resident engineers to this new role last September. As these personnel reduce their own project workloads and assume more supervisory responsibilities, they are likely to improve the Division's control over construction and maintenance projects.

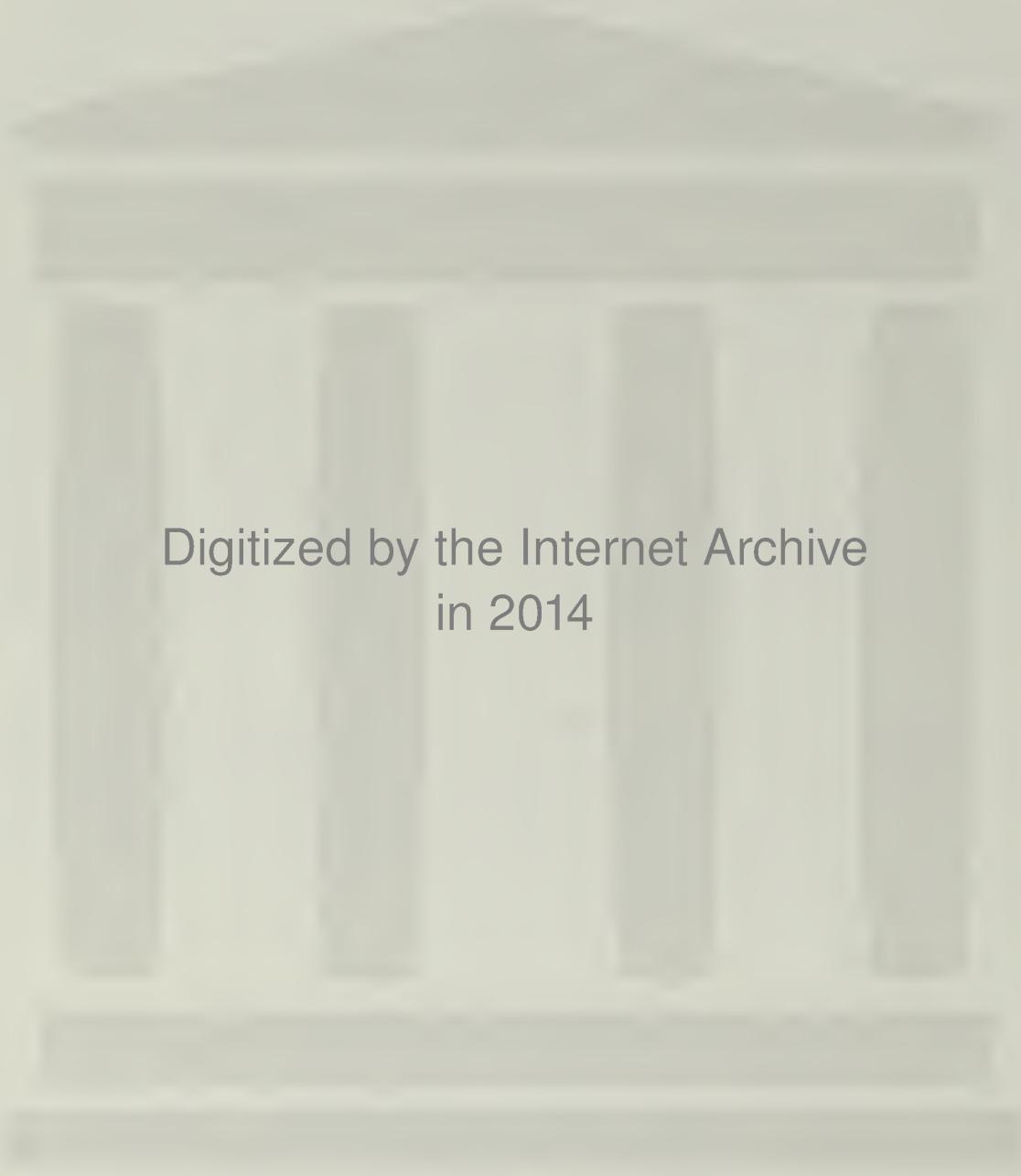
In addition, the Division plans to create a design review committee comprised of senior-level engineers as well as representatives from the construction and maintenance work forces. While the specific functions of this committee are still under discussion within the Division, it appears that such a committee will be intended to serve as a valuable mechanism for engineering training, peer review, and quality control over design work.

In the maintenance area, the MDC has centralized its maintenance personnel and equipment within the Central Services Division. This arrangement now enables the MDC to allocate its limited maintenance resources much more efficiently than was practicable in the past. In May of 1984, the MDC created the Maintenance Support Unit (MSU) within the Central Services Division and appointed a dynamic individual to lead the unit. The MSU, which is comprised of craftspeople such as painters, plumbers, and electricians, has increased the MDC's capacity to perform in-house a number of specialized maintenance and repair tasks which have been either contracted out or left undone in the past.

In the area of personnel management, the new Director of Human Resources, who was appointed last September, has centralized, reorganized, and added new staff to the personnel function. These actions have given the personnel function more visibility, credibility, and capacity to implement effective personnel management systems within the MDC.

Project Management

Within the Parks Engineering and Construction Division, the newly created Capital Planning and Control section is in the process of designing new project management policies, procedures, and reporting systems. If implemented, these measures should greatly strengthen the MDC's ability to monitor and control its design, construction, and maintenance projects. Specifically, the MDC has provided my Office with evidence that the following improvements are in various stages of planning and execution:



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- The Capital Planning and Control section has begun to implement a central record-keeping system. Last January, the Division instructed all resident engineers to submit their project calculation books and diaries to the MDC's Boston office. The section has also developed an implementation plan and timetable for indexing, storing, and maintaining the Division's records. According to the section's timetable, a central record-keeper is currently being hired; all Division records will be stored in a central location by this August, and the the central record-keeping system will be fully operational by this September.
- The Capital Planning and Control section has drafted comprehensive project reporting forms designed to capture essential project information for review by Division managers and the Commission. The Division plans to institute these forms in the near future, although no firm deadline has been set.
- The Capital Planning and Control section is strengthening the Division's design contract payment procedures. By linking payment of designers' invoices to MDC approval of interim and final design products, the revised procedures are intended to increase accountability and quality control in the area of design contracts. Implementation is expected sometime later this year.
- The Capital Planning and Control section is revising the Division's construction and maintenance contracting procedures in order to improve the Division's capacity to deter fraud and detect errors. For example, contract provisions would be revised to require contractors to submit original invoices for reimbursable materials and supplies. In addition, the Division would require its project engineers to review the resident engineers' backup calculations as well as the original supplier invoices submitted by the contractors before approving payments on construction and maintenance contracts. The Assistant Director for Capital Planning and Control expects to institute the revised procedures this summer.
- The Capital Planning and Control section is working with the Division of Capital Planning and Operations and the Office of Management Information

Services to implement a computerized project management system (CAPICS) designed to enable Division managers to track project costs and schedules on a systematic basis. The section expects much of the necessary data to be on-line by the end of 1986.

- The Division is planning to increase the use of lump-sum contracts for the MDC's construction and maintenance work. The unit-price contracts currently in use require the Division's engineers to invest much of their time estimating and verifying the quantities of various items to be used on each contract. According to the Director of Parks Engineering and Construction, reducing the Division's reliance on the cost-estimating skills of its engineers will increase the accuracy of contract award costs; similarly, reducing the amount of time engineers must spend verifying quantities will enable the engineers to spend more time monitoring contractor performance. To begin the transition to increased use of lump-sum contracts, the Director has sent some Division engineers to a seminar on contracting techniques. He has not set a firm deadline for completing the transition.
- The MDC has instituted a site visit team, comprised of the Commissioner and a varying number of Division managers and staff, which regularly visits the sites of MDC construction projects and interviews the resident engineers assigned to supervise those projects. The site visit team has increased the visibility of MDC officials out in the field, thereby notifying field personnel and contractors of the MDC's high-level interest in the status of the agency's construction projects.
- In developing and instituting the improvements cited above, the Division has taken pains to include representatives of affected organizational levels and units in the decision-making process. This consensus-building approach to the design of revised project management policies, procedures, and tools increases the likelihood that MDC managers and staff will understand and comply with the new systems when they are implemented.

Maintenance

As noted earlier, the maintenance function has been centralized. Within the Central Services Division, the Maintenance Support Unit (MSU) appears to

have increased both the quantity and the quality of maintenance work at the MDC's recreational facilities. Moreover, the current maintenance team appears to have generated a sense of competence and pride in the MDC's maintenance forces, who now evince a willingness to tackle maintenance and repair projects which would have been ignored or contracted out in prior years.

I have reviewed several of the examples cited in the Governor's report, and have concluded that the MSU has indeed generated savings to the Commonwealth in those cases. In the Cronin Rink example, the MSU proposed a less expensive alternative to that recommended by the study consultant commissioned by the Division of Capital Planning and Operations. In addition, the MSU showed ingenuity in providing water fountains accessible to handicapped persons. Instead of purchasing the fountains from a private supplier, at a price to the MDC of \$750 per fountain, the MSU designed and built the fountains in-house at roughly one fifth of the price the MDC would have paid to the private supplier. The MSU expects to construct and install at least 200 of these fountains over the next two years.

The MDC also appears to be progressing toward implementation of preventive maintenance programs for the agency's parkways and facilities. A major evaluation of the condition of the MDC's parkways and bridges is in progress; in addition, the MDC has designated two facilities for inclusion in a pilot preventive maintenance project initiated by the Division of Capital Planning and Operations.

Personnel Management

The Human Resources Division has initiated a number of important improvements. Implementation of a performance appraisal system for managers -- designed and overseen by the Department of Personnel Administration -- began last October. (The MDC will not implement performance appraisal for nonmanagement employees until the Department of Personnel Administration reaches agreement with the affected collective bargaining units.) The Director of Human Resources has also developed a proposed training plan and budget, neither of which has existed in the past. The Human Resources Division is currently hiring an analyst to manage the classification process, thereby increasing the MDC's capacity to analyze and fill its staffing requirements.

The MDC is to be commended for achieving important progress towards improvements in all of the areas cited above. As MDC officials acknowledge, these improvements will take more time and energy to implement and institutionalize. Nevertheless, it appears that the MDC is now building the management team and the commitment necessary to strengthen the agency's long-deficient management systems.

Remaining Improvements Needed

In reviewing the MDC's current and planned capabilities, my Office identified a number of significant areas in which additional improvements are essential. Two major organizational weaknesses, described below, expose the MDC to serious problems of fraud, excess costs, and deficient work.

Internal Audit

The MDC continues to lack the internal capacity to detect contractor fraud and to audit compliance with agency policies and procedures on a systematic basis. Currently, the internal audit unit consists of one investigator, on loan from the MDC's Police Division. Although the one-person unit is able to respond to requests for information from my Office and to conduct a limited number of internal investigations in response to complaints and tips, it clearly cannot function as an effective safeguard against fraud and waste.

The consequences of this gap are serious. Over the past three years, the MDC has not identified a single instance of contractor fraud. During the same period, my Office reviewed 14 MDC construction and maintenance contracts -- involving seven different contractors -- which were in effect between 1978 and 1985. On 13 of these contracts, my Office uncovered evidence of fraud: the abuses included bribery of public officials, fraudulent billings to the MDC by contractors, and false record-keeping by the MDC's own employees. Although the contracts reviewed constituted only a small percentage of the total construction and maintenance contracts in effect over the seven-year period, the high proportion of contracts revealing evidence of wrongdoing suggests that MDC contracts continue to be highly vulnerable to abuse.

An experienced internal audit team could significantly reduce this vulnerability. Indeed, the MDC Commissioner has stated that his ability to

uncover contractor fraud would be greatly improved by the addition of qualified staff to the internal audit unit. However, MDC officials report that they are unable to hire a qualified Director of Internal Audit at the current salary range set by the Department of Personnel Administration in accordance with its position classification system. The individual hired as Director in 1984 resigned after holding the position for only seven months; at the time of his departure, he attributed his decision to resign in large measure to the inadequacy of the Director's salary.

The Governor's 1984 report to the Legislature regarding management improvements at the MDC emphasized the importance of the new internal audit unit. It stated: "The primary focus of this total restructuring effort has been to strengthen our management systems and increase accountability. An integral part of this process and the top priority of Commissioner Geary is the establishment of an Internal Audit Unit" For the 1985 fiscal year, according to MDC officials, the MDC requested ten internal audit positions; the Governor's budget recommended eight; and the Legislature authorized four: the Director's position, two program manager positions, and one secretarial position. The Department of Personnel Administration did not release these positions until the ninth month of the 1985 fiscal year. In the meantime, the MDC requested eight additional positions for the 1986 fiscal year. However, the Governor's budget recommended none, and the Legislature authorized none. The four internal audit positions currently authorized are vacant.

For the 1987 fiscal year, according to budget staff within the Executive Office of Administration and Finance, the MDC has again requested eight additional positions for the internal audit unit. Although the Executive Office of Environmental Affairs recommended no additional positions, the Governor's budget has recommended two new internal audit positions.

Over the past three years, I have repeatedly stressed the need for an effective internal audit unit to safeguard the MDC against fraud and waste in project management and other areas. The MDC's notable progress in planning and initiating improvements to its management systems in no way diminishes the need for an independent monitoring group with sufficient staff resources and expertise to ensure the effective implementation and operation of these systems. The MDC's

attempts to hire a qualified Director and to obtain adequate staff positions for the internal audit unit appear to be deadlocked. The Commissioner has indicated to me that he believes the MDC needs a ten-person internal audit unit in order to function effectively. I agree. I therefore recommend that the Governor break the deadlock by immediately submitting legislation to mandate and fund a ten-person internal audit unit within the MDC and to exempt the Director's position from the salary constraints imposed by the Department of Personnel Administration's position classification system.

Contract Administration

The MDC's Contract Administrator, who reports directly to the Commissioner, oversees three major activities: contractor prequalification, consultant selection, and contract administration. The Director of Parks Engineering and Construction is thus effectively excluded from key decisions affecting the outcomes of the projects for which he is responsible. This arrangement was instituted by the MDC in 1981 in response to the recommendation of an outside consultant. In practice, it has not worked.

For example, in the case of contractor prequalification, the Director possesses detailed information regarding the performance of certain contractors on past MDC projects, yet has no direct input into decisions regarding suspension or disqualification of contractors who have performed poorly for the MDC in the past. Moreover, according to the Director, current MDC procedures for evaluating contractors' past performance do not consistently prevent such contractors from bidding on future MDC work. This deficiency exposes the MDC to substantial waste and quality control problems on its construction and maintenance projects.

A more effective organizational model for the MDC would be the model in use at both the Division of Capital Planning and Operations and the Department of Public Works, whereby the manager with ultimate responsibility for the agency's design and construction work must approve all contractor prequalification and consultant selection decisions. This arrangement would ensure that the MDC's contractor prequalification and consultant selection decisions are informed by the Parks Division's experience and expertise. While this structure would give additional authority to the Director of Parks Engineering and Construction,

abuse of that authority could be prevented by the MDC's ten-person internal audit unit (recommended above). The third activity overseen by the Contract Administrator -- contract administration -- could also be assigned to the Parks Engineering and Construction Division. I therefore recommend that the contractor prequalification, consultant selection, and contract administration functions be consolidated within the Capital Planning and Control section of the Parks Engineering and Construction Division.

Performance Measurement

The Governor's report asks the question: "How well has the MDC spent the money allocated to it by the Legislature over the past several years?" As evidence of the MDC's improved performance, the report compares the contract award costs to the actual, or final, costs of 76 design, construction, and maintenance projects completed over the past three years and cites "savings" of \$500,000. However, some MDC officials acknowledge that the difference between the award cost and the final cost of these contracts does not necessarily represent "savings." For example:

- Often, service contracts are awarded for an "upset limit" which represents the maximum amount of funds that can be spent. For example, the MDC awarded a \$30,000 contract for concrete testing services but only spent \$1,170 on the contract. Similarly, the MDC awarded a \$30,000 contract for geotechnical engineering advice but only spent \$14,150 on the contract. For both of these cases, the balances remaining on the contracts were not "savings," yet these balances were included in the \$500,000 savings figure cited by the Governor's report.
- The \$500,000 savings figure also includes a number of underruns on MDC maintenance contracts. However, some MDC officials have stated in interviews with my Office that the bid award cost for maintenance contracts represents merely a "funding account" and not a firm price which the MDC expects to pay. The actual amount spent on a maintenance contract is influenced by factors, such as the weather, which are beyond the control of either the MDC or the contractor. Without examining the specifics of each maintenance contract, it is impossible to determine whether a cost

underrun constitutes a real savings, or whether it simply reflects the fact that the actual amount of maintenance undertaken during the contract period was less than the amount projected by the MDC for that period.

- Even in the case of construction contracts, cost underruns do not automatically represent savings to the Commonwealth (nor do cost overruns automatically represent waste). The contract award amount is based on a series of estimates by the MDC's engineer of the quantities of construction materials and hours of labor that the project will require. According to the Director of Parks Engineering and Construction, the actual construction cost should deviate no more than 10 percent from the award cost; larger deviations in either direction can be indicators of poor estimating techniques or other problems. Such problems may have existed over the past three years: the \$500,000 savings figure cited in the Governor's report includes construction contract cost underruns of 16 percent, 17 percent, 35 percent, and even 54 percent of the initial contract award.

In reviewing the MDC's improvements, I have seen persuasive cases in which the MDC has realized cost savings to the Commonwealth. However, the performance statistics cited in the Governor's report do not present an accurate picture of the MDC's performance. I therefore recommend that the MDC accord high priority to the development of more meaningful measures of performance -- measures which account for the qualitative differences among the various types of contracts and projects undertaken by the MDC and which accurately differentiate "paper savings" from genuine management savings.

Management of Improvements

In my review of the MDC's progress to date, I have noted in many instances the absence of firm timetables for developing and implementing the planned improvements. The establishment by the MDC of a comprehensive improvement plan and schedule would be instrumental in fulfilling two important objectives. First, a detailed plan and schedule would facilitate implementation of the planned improvements by committing all participants in the implementation process to specific tasks and target dates, and would help the Commission control and sustain progress toward desired accomplishments. In addition, the

existence of a credible plan would increase public confidence in the MDC's capacity to carry out its mandate. My final recommendation, therefore, is that the MDC develop and disseminate a specific, comprehensive, realistic implementation plan and timetable to guide the remaining stages of the MDC's improvement process.

Conclusion

Chapter 811 requires me to answer the following question: Does the MDC have "the necessary technical, managerial, and financial capability" to execute capital construction projects and maintain them in good repair? My answer is: "Not yet." Nevertheless, I am pleased to report that in the past eight months the MDC clearly has made significant progress toward this goal.

The scope of this report has been limited to verifying the creditable progress which the MDC has achieved and pointing out the work that remains. I would note in closing, however, that the risks of proceeding with the capital projects authorized by Chapter 811 would be greatly diminished, in my judgment, were the recommendations offered in this report adopted and implemented.

